

CLAIMS

1. A method for forming a thick film pattern, characterized by comprising:

a film formation step of applying a photosensitive paste containing an inorganic powder, a photosensitive monomer, and a photopolymerization initiator and containing substantially no polymer to a support so as to form a photosensitive paste film;

an exposure step of subjecting the photosensitive paste film to an exposure treatment; and

a development step of developing the photosensitive paste film subjected to the exposure treatment so as to form a predetermined thick film pattern.

2. A method for forming a thick film pattern, characterized by comprising:

a film formation step of applying a photosensitive paste containing an inorganic powder, a photosensitive monomer, a photopolymerization initiator, and a polymer to a support, wherein a ratio (weight ratio) of the photosensitive monomer to a total amount of the photosensitive monomer and the polymer satisfies the condition represented by the following Formula (1):

$$\text{photosensitive monomer}/(\text{photosensitive monomer} + \text{polymer}) \geq 0.86 \quad (1)$$

so as to form a photosensitive paste film;

an exposure step of subjecting the photosensitive paste film to an exposure treatment; and

a development step of developing the photosensitive paste film subjected to the exposure treatment so as to form a predetermined thick film pattern.

3. The method for forming a thick film pattern according to Claim 1 or Claim 2, characterized in that the contents of the inorganic powder, the photosensitive monomer, and the photopolymerization initiator constituting the photosensitive paste are within the ranges of

inorganic powder: 60 to 90 percent by weight,  
photosensitive monomer: 5 to 39 percent by weight, and  
photopolymerization initiator: 1 to 10 percent by weight.

4. The method for forming a thick film pattern according to any one of Claims 1 to 3, characterized in that a photosensitive paste containing a photosensitive monomer having a double bond concentration within the range of 8 mmol/g to 11 mmol/g is used as the photosensitive paste.

5. The method for forming a thick film pattern according to any one of Claims 1 to 4, characterized in that a photosensitive paste containing a photosensitive monomer having an ethylene oxide structure with a degree of polymerization of 3 or less is used as the photosensitive paste.

6. The method for forming a thick film pattern according to any one of Claims 1 to 5, characterized in that the photosensitive paste comprises an ultraviolet absorber.

7. The method for forming a thick film pattern according to any one of Claims 1 to 6, characterized in that the

photosensitive paste comprises a solvent in a proportion of 5 percent by weight or less.

8. The method for forming a thick film pattern according to any one of Claims 1 to 7, characterized in that development is conducted by using an organic solvent in the development step.

9. The method for forming a thick film pattern according to any one of Claims 1 to 8, characterized in that the exposure treatment is conducted while the photosensitive paste film and a photomask are disposed in such a way as to be kept from contact with each other in the exposure step.

10. The method for forming a thick film pattern according to any one of Claims 1 to 8, characterized in that the photosensitive paste is subjected to the exposure treatment without using a photomask in the exposure step.

11. A method for manufacturing an electronic component, characterized by comprising the steps of:

forming a thick film pattern by the method according to any one of Claims 1 to 10; and

firing the resulting thick film pattern.

12. A photolithography photosensitive paste characterized by comprising an inorganic powder, a photosensitive monomer, and a photopolymerization initiator and comprising substantially no polymer.

13. A photolithography photosensitive paste characterized by comprising

an inorganic powder, a photosensitive monomer, a

photopolymerization initiator, and a polymer,

wherein a ratio (weight ratio) of the photosensitive monomer to a total amount of the photosensitive monomer and the polymer satisfies the condition represented by the following Formula (1):

$$\frac{\text{photosensitive monomer}}{\text{photosensitive monomer} + \text{polymer}} \geq 0.86 \quad (1).$$

14. The photolithography photosensitive paste according to Claim 12 or Claim 13, characterized in that

the contents of the inorganic powder, the photosensitive monomer, and the photopolymerization initiator are within the ranges of

inorganic powder: 60 to 90 percent by weight,

photosensitive monomer: 5 to 39 percent by weight, and

photopolymerization initiator: 1 to 10 percent by weight.

15. The photolithography photosensitive paste according to any one of Claims 12 to 14, characterized in that the photosensitive monomer is a photosensitive monomer having a double bond concentration within the range of 8 mmol/g to 11 mmol/g.

16. The photolithography photosensitive paste according to any one of Claims 12 to 15, characterized in that the photosensitive monomer is a photosensitive monomer having an ethylene oxide structure with a degree of polymerization of 3 or less.

17. The photolithography photosensitive paste according to any one of Claims 12 to 16, characterized by comprising an ultraviolet absorber.

18. The photolithography photosensitive paste according to any

one of Claims 12 to 17, characterized by comprising a solvent in a proportion of 5 percent by weight or less.